IN THE CLAIMS:

1. *(currently amended)* A microstructured optical fiber component comprising

a first internal portion exhibiting a first refractive index;

a plurality of regions exhibiting various, predetermined refractive indicies, the plurality of regions arranged to provide modifications to an optical signal passing therethrough

CHARACTERIZED IN THAT

the microstructured optical fiber component is formed to comprise a fiber segment by drawing from a preform of similar pattern and is defined by a pair of endfaces with predetermined height vertical sidewalls therebetween, the vertical sidewalls comprising an input port and an output port for the microstructured optical fiber component ~~with a height~~ such that the endfaces are disposed orthogonal to the direction of optical signal propagation and do not significantly affect the behavior of the light passing ~~therethrough~~ through the vertical sidewalls thereof between the input port and the output port, in a direction parallel to the endfaces.

2. *(original)* The microstructured optical fiber of claim 1 wherein the fiber segment comprises at least one aperture formed through the vertical extent thereof, said at least one aperture filled with a gas, liquid or solid.

3. *(currently amended)* The microstructured optical fiber of claim 2 wherein one or more optical elements are disposed within the at least one ~~cylindrical~~ aperture.

4. *(original)* The microstructured fiber of claim 3 wherein a plurality of solid plugs is disposed within at least one aperture.

5. *(original)* The microstructured optical fiber of claim 3 wherein one or more micro-fluidic plugs of material with a known refractive index is inserted in at least one aperture.

6. *(original)* The microstructured optical fiber of claim 1 wherein one or more microstructures are formed through at least a portion of the vertical extent of the fiber segment.

7. *(currently amended)* The microstructured optical fiber of claim 6 wherein at least one microstructure comprises a plurality of etched cylindrical elements formed to be parallel to the endfaces of the component.

8. *(currently amended)* The microstructured optical fiber wherein the sidewalls of the fiber segment are tapered from the center region toward the endfaces to alter the lateral behavior of an optical signal passing ~~therethrough~~ through the input and output ports of said tapered sidewalls.

9. - 12. ***cancelled***